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PATENT

The Eclipse Group Docket No. ST02014USU (168-US-U1)

In the Claims

1-29 (Canceled)

30. (Currently Amended) A method for searching for Global Positioning System (GPS) satellites with a multi-channel GPS receiver, wherein the multi-channel GPS receiver receives a plurality of GPS signals where each GPS signal corresponds to a GPS satellite having a GPS satellite identification number ("GPS satellite ID"), the method comprising:

assigning each GPS satellite ID corresponding to each received GPS signal from the received plurality of GPS signals to an individual channel of the multi-channel GPS receiver;

selecting a channel of the multi-channel GPS receiver as a monitoring channel, where the monitoring channel is not one of the individual channel channels assigned to receive GPS signal from the received plurality of GPS signals;

and monitoring the received GPS signals with the monitoring channel, where the monitoring channel employs a low-sensitivity search.

31. (Original) The method of claim 30, wherein assigning includes utilizing a visible list to assign each GPS satellite ID to each individual channel.

32. (Original) The method of claim 31, wherein selecting includes selecting a first non- assigned channel and assigning the GPS satellite ID from an initial visible list.

33. (Original) The method of claim 31, wherein selecting includes selecting the channel assigned to a lowest elevation satellite upon assignment of all channels.

34. (Original) The method of claim 30, wherein selecting includes selecting a last channel of the multi-channel GPS receiver when all channels are assigned and the visible list is unavailable.

35. (Original) The method of claim 30, further including

determining the position of the multi-channel GPS receiver, and

monitoring a channel assigned to a satellite ID with a low carrier-to-noise (C/N₀).

36. (Original) The method of claim 35, wherein monitoring includes determining a false lock at the channel.

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37. (Original) The method of claim 30, further including determining whether a GPS satellite ID is assigned to the monitoring channel.
38. (Original) The method of claim 37, including selecting a next GPS satellite ID when the GPS satellite ID searched is assigned to a channel when the a satellite ID has not been assigned to the monitoring channel.
39. (Original) The method of claim 38, further including searching the remaining satellites in the GPS constellation after all the common satellites are searched.
- 40-43 (Canceled)
44. (Currently Amended) A method for searching for Global Positioning System ("GPS") satellites with a Fast Acquisition System within a multi-channel GPS receiver, where the multi-channel GPS receiver receives a plurality of GPS signals wherein each GPS signal corresponds to a GPS satellite having a GPS satellite identification number (Satellite ID) and each GPS signal has a corresponding received GPS satellite Doppler frequency, and the Fast Acquisition System has an initial visible list of GPS satellites and a GPS satellite constellation list, the method comprising:
- assigning each GPS satellite ID corresponding to each received GPS signal from the received plurality of GPS signals to an individual channel of the multi-channel GPS receiver;
 - selecting a channel of the multi-channel GPS receiver as a monitoring channel, where the monitoring channel is not one of the individual channel channels assigned to receive GPS signal from the received plurality of GPS signals;
 - monitoring the received GPS signals with the monitoring channel, where the monitoring employs a low-sensitivity search;
 - generating a weak list of GPS satellites from the received plurality of GPS signals;
 - generating a search list of GPS satellites from the weak list of GPS satellites;
 - searching the received plurality of GPS signals utilizing the search list of GPS satellites; and
 - determining whether a strong GPS satellite signal exists from the received plurality of GPS signals.

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45. (Original) The method of claim 44, wherein generating the weak list of GPS satellites includes
- determining a weak GPS satellite signal from the received plurality of GPS signals, and
 - generating the weak list of GPS satellites including the weak GPS satellite.
46. (Original) The method of claim 45, wherein generating a search list of GPS satellites includes
- comparing the weak list of GPS satellites to the GPS constellation list, and
 - generating the search list of GPS satellites where the search list of GPS satellites includes all the GPS satellites in the GPS satellite constellation list less the GPS satellites in the weak list of GPS satellites.
47. (Original) The method of claim 46, wherein searching includes
- determining a Doppler frequency for the weak GPS satellite signal, and
 - searching the received plurality of GPS signals utilizing the Doppler frequency of the weak GPS satellite signal.
48. (Original) The method of claim 47, wherein searching further includes
- generating a Doppler list of Doppler frequency values from the determined weak GPS satellite signal Doppler frequency, and
 - searching the received plurality of GPS signals utilizing the Doppler list.
49. (Currently Amended) A Fast Acquisition System within a multi-channel Global Positioning System ("GPS") receiver, where the multi-channel GPS receiver receives a plurality of GPS signals wherein each GPS signal corresponds to a GPS satellite having a GPS satellite identification number (Satellite ID) and each GPS signal has a corresponding received GPS satellite Doppler frequency, and the Fast Acquisition System has an initial visible list of GPS satellites and a GPS satellite constellation list, the Fast Acquisition System comprising:
- means for assigning each GPS satellite ID corresponding to each received GPS signal from the received plurality of GPS signals to an individual channel of the multi-channel GPS receiver;
 - means for selecting a channel of the multi-channel GPS receiver as a monitoring

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channel, where the monitoring channel is not one of the individual channel channels assigned to receive GPS signal from the received plurality of GPS signals;

means for monitoring the received GPS signals with the monitoring channel, where the means for monitoring employs a low-sensitivity search;

means for generating a weak list of GPS satellites from the received plurality of GPS signals;

means for generating a search list of GPS satellites from the weak list of GPS satellites;

means for searching the received plurality of GPS signals utilizing the search list of GPS satellites; and

means for determining whether a strong GPS satellite signal exists from the received plurality of GPS signals.

50. (Original) The Fast Acquisition System of claim 49, wherein generating the weak list of GPS satellites means includes

means for determining a weak GPS satellite signal from the received plurality of GPS signals, and

means for generating the weak list of GPS satellites including the weak GPS satellite.

51. (Original) The Fast Acquisition System of claim 50, wherein generating a search list of GPS satellites means includes

means for comparing the weak list of GPS satellites to the GPS constellation list, and

means for generating the search list of GPS satellites where the search list of GPS satellites includes all the GPS satellites in the GPS satellite constellation list less the GPS satellites in the weak list of GPS satellites.

52. (Original) The Fast Acquisition System of claim 51, wherein searching means includes

means for determining a Doppler frequency for the weak GPS satellite signal, and

means for searching the received plurality of GPS signals utilizing the Doppler frequency of the weak GPS satellite signal.

53. (Original) The Fast Acquisition System of claim 52, wherein searching means further

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includes

means for generating a Doppler list of Doppler frequency values from the determined weak GPS satellite signal Doppler frequency, and

means for searching the received plurality of GPS signals utilizing the Doppler list.

54. (Previously presented) A signal-bearing medium having software for searching for Global Positioning System ("GPS") satellites with a Fast Acquisition System within a multi-channel Global Positioning System ("GPS") receiver, where the multi-channel GPS receiver receives a plurality of GPS signals wherein each GPS signal corresponds to a GPS satellite having a GPS satellite identification number (Satellite ID) and each GPS signal has a corresponding received GPS satellite Doppler frequency, and the Fast Acquisition System has an initial visible list of GPS satellites and a GPS satellite constellation list, the signal-bearing medium comprising:

logic configured for assigning each GPS satellite ID corresponding to each received GPS signal from the received plurality of GPS signals to an individual channel of the multi-channel GPS receiver;

logic configured for selecting a channel of the multi-channel GPS receiver as a monitoring channel;

logic configured for monitoring the received-GPS signals with the monitoring channel, where the logic configured for monitoring employs a low-sensitivity search;

logic configured for generating a weak list of GPS satellites from the received plurality of GPS signals;

logic configured for generating a search list of GPS satellites from the weak list of GPS satellites;

logic configured for searching the received plurality of GPS signals utilizing the search list of GPS satellites; and

logic configured for determining whether a strong GPS satellite signal exists from the received plurality of GPS signals.

55. (Original) The signal-bearing medium of claim 54, wherein logic configured for generating the weak list of GPS satellites includes

logic configured for determining a weak GPS satellite signal from the received

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plurality of GPS signals, and

logic configured for generating the weak list of GPS satellites including the weak GPS satellite.

56. (Original) The signal-bearing medium of claim 55, wherein logic configured for generating a search list of GPS satellites includes

logic configured for comparing the weak list of GPS satellites to the GPS constellation list, and

logic configured for generating the search list of GPS satellites where the search list of GPS satellites includes all the GPS satellites in the GPS satellite constellation list less the GPS satellites in the weak list of GPS satellites.

57. (Original) The signal-bearing medium of claim 56, wherein logic configured for searching includes

logic configured for determining a Doppler frequency for the weak GPS satellite signal, and

logic configured for searching the received plurality of GPS signals utilizing the Doppler frequency of the weak GPS satellite signal.

58. (Original) The signal-bearing medium of claim 57, wherein logic configured for searching further includes

logic configured for generating a Doppler list of Doppler frequency values from the determined weak GPS satellite signal Doppler frequency, and

logic configured for searching the received plurality of GPS signals utilizing the Doppler list.

59. (Previously presented) A Fast Acquisition System within a multi-channel GPS receiver, where the multi-channel GPS receiver receives a plurality of GPS signals wherein each GPS signal corresponds to a GPS satellite having a GPS satellite identification number (Satellite ID) and each GPS signal has a corresponding received GPS satellite Doppler frequency, and the Fast Acquisition System has an initial visible list of GPS satellites and a GPS satellite constellation list, the Fast Acquisition System comprising:

means for determining a weak GPS satellite signal from the received plurality of GPS signals, and

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means for generating the weak list of GPS satellites including the weak GPS satellite.

means for comparing the weak list of GPS satellites to the GPS constellation list, and

means for generating the search list of GPS satellites where the search list of GPS satellites includes all the GPS satellites in the GPS satellite constellation list less the GPS satellites in the weak list of GPS satellites.

means for determining a Doppler frequency for the weak GPS satellite signal, and searching the received plurality of GPS signals utilizing the Doppler frequency of the weak GPS satellite signal.

means for determining whether a strong GPS satellite signal exists from the received plurality of GPS signals by use of a monitoring channel that employs a low sensitivity search.

60-78 (Canceled)

79. (Currently Amended) A Fast Acquisition System for searching for Global Positioning System (GPS) satellites with a multi-channel GPS receiver, wherein the multi-channel GPS receiver receives a plurality of GPS signals where each GPS signal corresponds to a GPS satellite having a GPS satellite identification number ("GPS satellite ID"), the Fast Acquisition System comprising:

means for assigning each GPS satellite ID corresponding to each received GPS signal from the received plurality of GPS signals to an individual channel of the multi-channel GPS receiver;

means for selecting a channel of the multi-channel GPS receiver as a monitoring channel; and

means for monitoring the received GPS signals with the monitoring channel, where the monitoring employs a low-sensitivity search and the monitoring channel is not one of the individual channel channels assigned to receive GPS signal from the received plurality of GPS signals.

80. (Original) The Fast Acquisition System of claim 79, wherein means for assigning includes utilizing a visible list to assign each GPS satellite ID to each individual channel.

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81. (Original) The Fast Acquisition System of claim 80, wherein means for selecting includes means for selecting a first non-assigned channel and assigning the GPS satellite ID from an initial visible list.
82. (Original) The Fast Acquisition System of claim 80, wherein means for selecting includes means for selecting the channel assigned to a lowest elevation satellite upon assignment of all channels.
83. (Original) The Fast Acquisition System of claim 79, wherein means for selecting includes means for selecting a last channel of the multi-channel GPS receiver when all channels are assigned and the visible list is unavailable.
84. (Original) The Fast Acquisition System of claim 80, further including
means for determining the position of the multi-channel GPS receiver, and
means for monitoring a channel assigned to a satellite ID with a low carrier-to-noise density (C/N₀).
85. (Original) The Fast Acquisition System of claim 84, wherein means for monitoring includes means for determining a false lock at the channel.
86. (Original) The Fast Acquisition System of claim 79, further including means for determining whether a GPS satellite ID is assigned to the monitoring channel.
87. (Original) The Fast Acquisition System of claim 86, including means for selecting a next GPS satellite ID when the GPS satellite ID searched is assigned to a channel when the a satellite ID has not been assigned to the monitoring channel.
88. (Original) The Fast Acquisition System of claim 87, further including means for searching the remaining satellites in the GPS constellation after all the common satellites are searched.